MONTHLY WEATHER REVIEW.

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VOL. XXXVII. MARCH, 1909. No. 3

The MONTHLY WEATHER REVIEW summarizes the current manuscript data received from about 3,500 land stations in the United States and about 1,250 ocean vessels; it also gives the general results of the study of daily weather maps based on telegrams or cablegrams from about 200 North American and 40 European, Asiatic, and oceanic stations.

The hearty interest shown by all observers and correspondents is gratefully recognized.

Acknowledgment is also made of the specific cooperation of the following chiefs of independent, local, or governmental services: R. F. Stupart, Esq., Director of the Meteorological Service of the Dominion of Canada; Señor Manuel E. Pastrana, Director of the Central Meteorological and Magnetic Observatory of Mexico; Señor Camilo A. Gonzales, Director-General of Mexican Telegraphs; Capt. S. I. Kimball, General Superintendent of the United States Life-Saving Service; Commandant Francisco S. Chaves, Director of the Meteorological Service of the Azores, Ponta Delgada, St. Michaels, Azores; Dr. W. N. Shaw, Director of the Meteorological Office, London; Maxwell Hall, Esq., Government Meteorologist, Kingston, Jamaica; Rev. L. Gangoiti, Director of the Meteorological Observatory of Belen College, Havana, Cuba; Señor Luis G. y Carbonell, Director, Meteorological Service of Cuba, Havana, Cuba; Rev. José Algué, S. J., Director of the Phillipine Weather Bureau, Manila; Maj. Gen. M. A. Rykachef, Director of the Physical Central Observatory, St. Petersburg, Russia; Carl Ryder, Director, Danish Meteorological Institute, Copenhagen, Denmark.

As far as practicable the time of the seventy-fifth meridian is used in the text of the MONTHLY WEATHER REVIEW.

Barometric pressures, both at land stations and on ocean vessels, whether station pressures or sea-level pressures, are reduced, or assumed to be reduced, to standard gravity, as well as corrected for all instrumental peculiarities, so that they express pressure in the standard international system of measures, namely, by the height of an equivalent column of mercury at 32° Fahrenheit, under the standard force, i. e., apparent gravity at sea-level and latitude 45°.

FORECASTS AND WARNINGS.

By Prof. E. B. GARRIOTT, in charge of Forecast Division.

An abnormal distribution of atmospheric pressure is invariably associated with marked departures from seasonal weather. During the past winter pressure was abnormally low over the northern Pacific and thence over and near the boundary between the United States and British America and was unusually high over the southern Pacific and southwestern portions of the United States. This arrangement of pressure caused a prevalence of mild southerly winds over the United States and drew over the extreme British Northwest Territory exceptionally cold winds from the Far North. At times there were reversals of this pressure distribution and cold air masses swept southward over the United States. A notable instance of this kind occurred during the first decade of January, when from North Dakota to Washington and northern Oregon the cold exceeded any previous record for the same period. The fact that the reversals of prevailing pressure conditions, with subsequent cold-wave visitations, were in each instance foreseen, furnishes additional evidence of the value of pressure charts that permit a daily survey of the oscillations and movements of the great centers of action of the Northern Hemisphere. By the aid of these charts the cold-wave warnings of the past winter were exceptionally accurate, and they were for the first time successfully made for periods of several days in advance.

The first important storm of March, 1909, moved from the Northwest rapidly southeastward to the middle Atlantic coast during the 2d and 3d, where it deepened rapidly and turned sharply northward near and off the coast during the night of the 3d, attended over the Atlantic States north of Virginia by rain or snow and high north to northwest winds. Until the passage of its center over the Atlantic coast line this storm possessed moderate strength only. The abnormal checking of its eastward progress and its subsequent increase in intensity and sharp recurve to the northward were due to conditions that existed over the ocean beyond the region of observation. The usual features that attend the continental class of storms to which this storm belonged were forecast, and warnings of the gales that swept the Atlantic coast the night of the 3d and during the 4th were issued the morning of the 3d. The rain, snow, and high winds of the night of the 3d and morning of the 4th prostrated electric wires and seriously interfered with communication and transportation in the Middle Atlantic States.

During the week ending Saturday, March 13, an extensive area of precipitation covered the country from British America to the Mexican border and the Gulf of Mexico. In the North, West, and Southwest the precipitation was in the form of snow, and in the middle and east Gulf States and Georgia heavy rains caused flood stages in streams. Following the precipitation, the weather was exceptionally cold in the middle and southern Rocky Mountain districts, and on the morning of the 13th minimum readings of 2° and 24° were reported at Roswell, N. Mex., and El Paso, Tex., respectively. During the succeeding two days frost-producing temperatures extended eastward over the Gulf and South Atlantic States.

The following special forecast was issued Sunday, March 14:

> During the present week a disturbance will advance from the Pacific to the Atlantic coasts from about Tuesday to Friday, preceded and attended by rising temperature and by general rains in middle and southern districts and by snow in the more northern States, and followed by a period of cooler, fair weather that will set in over the Northwestern States Tuesday night and reach the Atlantic seaboard about the close of the week.

The disturbance referred to appeared Tuesday, the 16th, over the Pacific States, and its center reached the Atlantic coast Friday night, the 19th. Its passage was attended by snow from the Missouri Valley over the Southern and Southeastern States. It was followed by lower temperature that set in over the Northwest Tuesday night and reached the Atlantic and east Gulf States Saturday.

On the 20th heavy rain set in over California. During the succeeding three days the rain area extended over the Middle, Western, and Southwestern States, with heavy snow in the middle Rocky Mountain districts. On the 24th the rains extended over the central valleys, Lake region, and Atlantic